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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,214	05/31/2002	Masaru Yasui	PHJ 99-026	8898

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EXAMINER

NATNAEL, PAULOS M

ART UNIT PAPER NUMBER

2614

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/890,214

Applicant(s)

YASUI ET AL.

Examiner

Paulos M. Natnael

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1)  Responsive to communication(s) filed on \_\_\_\_.
- 2a)  This action is **FINAL**.                      2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4)  Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_ is/are allowed.
- 6)  Claim(s) 1-9 is/are rejected.
- 7)  Claim(s) \_\_\_\_ is/are objected to.
- 8)  Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a)  All    b)  Some \*    c)  None of:
- Certified copies of the priority documents have been received.
  - Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5)  Notice of Informal Patent Application (PTO-152)
- 6)  Other: \_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Hoshikawa, U.S. Patent No. 6,831,700.

Considering claim 1, wherein for the controls on writing and reading, any of the line-memories are circularly selected and a sample sequence of the input digital video signal is sequentially written into the selected line-memory at a sample rate of the sample sequence, and at the same time the samples of the written sequence are sequentially read out at a substantially constant rate which is in accordance with a desired vertical expansion ratio and which is higher than the sample rate, wherein, when one of the line-memories is in a writing operation, the other one of the line-memories is subjected to a repeatedly reading control, is met by Fig.2 wherein the line memory 25 receives an input video signal and stores the signal sequentially (col. 3, lines 25) and controller 24 controls the writing into and reading from the line memory of the video signal which then

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is output to the horizontal processor 22 and vertical processor 23 for size scaling of the signal.

Considering claim 2, a method according to claim 1, characterized in that the line-memories are FIFO type memories having a dual port is met by line memory 25 (col.4, lines 21-25), and is also a dual port. (see fig.2)

Considering claim 3, a method according to claim 1 or 2, characterized in that the constant rate corresponds to a dot-frequency of image to be displayed, is met by the sampling frequency conversion processing of 1 and 21, figs. 1 and 2;

Considering claim 4, a method according to claim 1, 2, or 3, characterized in that a line-memory to be in a reading mode is designated based on a synchronization signal having a frequency more than by a factor of the vertical expansion ratio as high as a horizontal synchronization frequency of the input digital video signal, is met by the disclosure that "**The controller selects the *vertical scaling power of the resolution, and generates a horizontal scanning synchronizing signal having a period depending on the selected scaling power.*** The arithmetical unit is triggered by the horizontal scanning synchronizing signal and generates a new video data series." (see abstract)

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims **5-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hoshikawa**, U.S. Patent No. **6,831,700**.

Considering claim 5,

b) for the controlling: a sequence of samples of the input digital video signal is written into the line-memory while the samples of the written sequence are sequentially read out in response to a read-clock signal; and a frequency of the read-clock signal is set to have a constant frequency which is lower than the frequency of the shift-clock signal and which is in accordance with a desired horizontal expansion ratio, is met by Fig.2 wherein the line memory 25 receives an input video signal and stores the signal sequentially (col. 3, lines 25) and controller 24 controls the writing into and reading from the line memory of the video signal which then is output to the horizontal processor 22 and vertical processor 23 for size scaling of the signal.

Except for;

a) wherein the signal subjected to horizontal interpolation is applied to a serial input of a shift-register for applying pixel information signals associated respectively with column electrodes each extending in a vertical direction of a display area in displaying means, a

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**shift-clock signal** is applied to the **shift-register**, **the shift-clock signal** having a predetermined frequency for shifting data latched in the shift-register.

Regarding a), Hoshikawa does not disclose a shift register. However, Hoshikawa suggests that shifting the timing could be used instead of using multiple of line memories. Hoshikawa discloses, "In the embodiments described above, the apparatus uses three line memories. The configuration of the apparatus, however, is not limited to the above embodiment, but the apparatus may include only two line memories. In this embodiment, the apparatus can perform the same function as that in the above embodiments by shifting the timing for reading out data from the line memories." (col. 9, 19-25) Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Hoshikawa by providing a shift register to shift the signal by one line or any desired number of lines so that an extra line memory would not be necessary thereby saving valuable space and cost of the system overall.

Considering claim 6, a method according to claim 5, characterized in that the read-clock signal is generated based on the shift-clock signal.

See rejection of claim 5(a);

Considering claim 7, a method according to claim 5 or 6, characterized in that within one horizontal scanning period, one line of samples stored in the line-memory are read out at uniform intervals.

See rejection of claim 5(b).

Considering claim 8, a display device with a function of interpolating for a video signal, in which at least two line-memories are used, the line-memories being applied with an input digital video signal, and in which the line-memories are subjected to controls on their writing and reading so that a video signal subjected to a vertical interpolation is generated from reading-outputs of the line-memories, wherein the device comprises: control means for performing such a control that in the controls on writing and reading, any of the line-memories are circularly selected and a sequence of samples of the input digital video signal are sequentially written into the selected line-memory at a sample rate of the samples, and at the same time the samples of the written sequence are sequentially read out at a substantially constant rate which is in accordance with a desired vertical expansion ratio and which is higher than the sample rate, wherein, when one of the line-memories is in a writing operation, the other one of the line-memories is subjected to a repeatedly reading control.

See rejection of claim 5;

Considering claim 9, a display device with a function of interpolating for a video signal, comprising at least one line-memory being applied with an input digital video signal, wherein the line-memory is subjected to controlling including writing and reading thereof so that a video signal subjected to horizontal interpolation is generated from reading-outputs of the line-memories, which further comprises: means for applying the

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signal subjected to horizontal interpolation to a serial input of a shift-register for applying pixel information signals associated respectively with column electrodes each extending in a vertical direction of a display area in displaying means; means for applying a shift-clock signal to the shift-register, the shift-clock signal having a predetermined frequency for shifting data latched in the shift-register; and means for performing writing a sequence of samples of the input digital video signal into the line-memory while sequentially reading out the samples of the written sequence in response to a read-clock signal, a frequency of the read-clock signal being set to have a constant frequency which is lower than the frequency of the shift-clock signal and which is in accordance with a desired horizontal expansion ratio.

See rejection of claim 5;

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Onagawa, U.S. Patent No. 6,806,914 discloses a method and apparatus for changing the size of image.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paulos M. Natnael whose telephone number is (703) 305-0019. The examiner can normally be reached on 9:00am - 5:30pm.

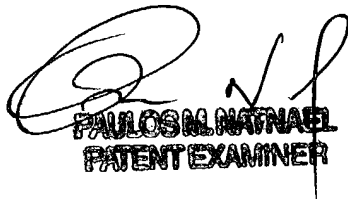


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PMN  
December 19, 2004



PAUL S. MATNAEL  
PATENT EXAMINER